



DEPARTMENT OF DEFENSE
OFFICE OF FREEDOM OF INFORMATION AND SECURITY REVIEW
1155 DEFENSE PENTAGON
WASHINGTON, DC 20301-1155

APR 14 2005

Ref: 05-S-1292

MEMORANDUM FOR DIRECTOR PROGRAM ANALYSIS & EVALUATION
[OSD(PA&E)]
ATTN: MR. RUSSELL VOGEL

SUBJECT: Review of Presentation for Posting to DoD Cost Analyst Symposium Website

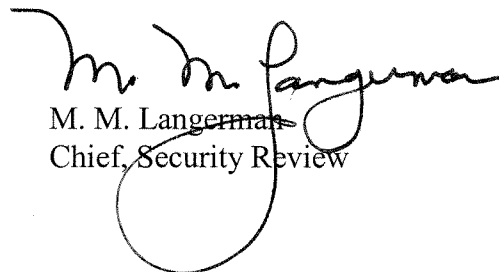
This is in response to your request for clearance for public release of the presentation:

- *Risk and Decision-Making: The Role of Costing Analysis in Canadian Defence*

The presentation is returned without action. The presentation was not originated by a Department of Defense (DoD) element and does not contain DoD information that falls under the purview of the DoD or this office.

Copies of your DD Form 1910 and the presentation are returned. Please direct any questions regarding this case to Mr. Dave Riedel, Security Review, at (703) 695-5156, e-mail address: david.riedel@whs.mil.

Sincerely,



M. M. Langerman
Chief, Security Review

Attachments:
As stated



Risk and Decision-Making: The Role of Costing Analysis in Canadian Defence

LCol Ross Fetterly and Capt Bob Ebsary

**Directorate of Strategic Finance and Costing
National Defence Headquarters**

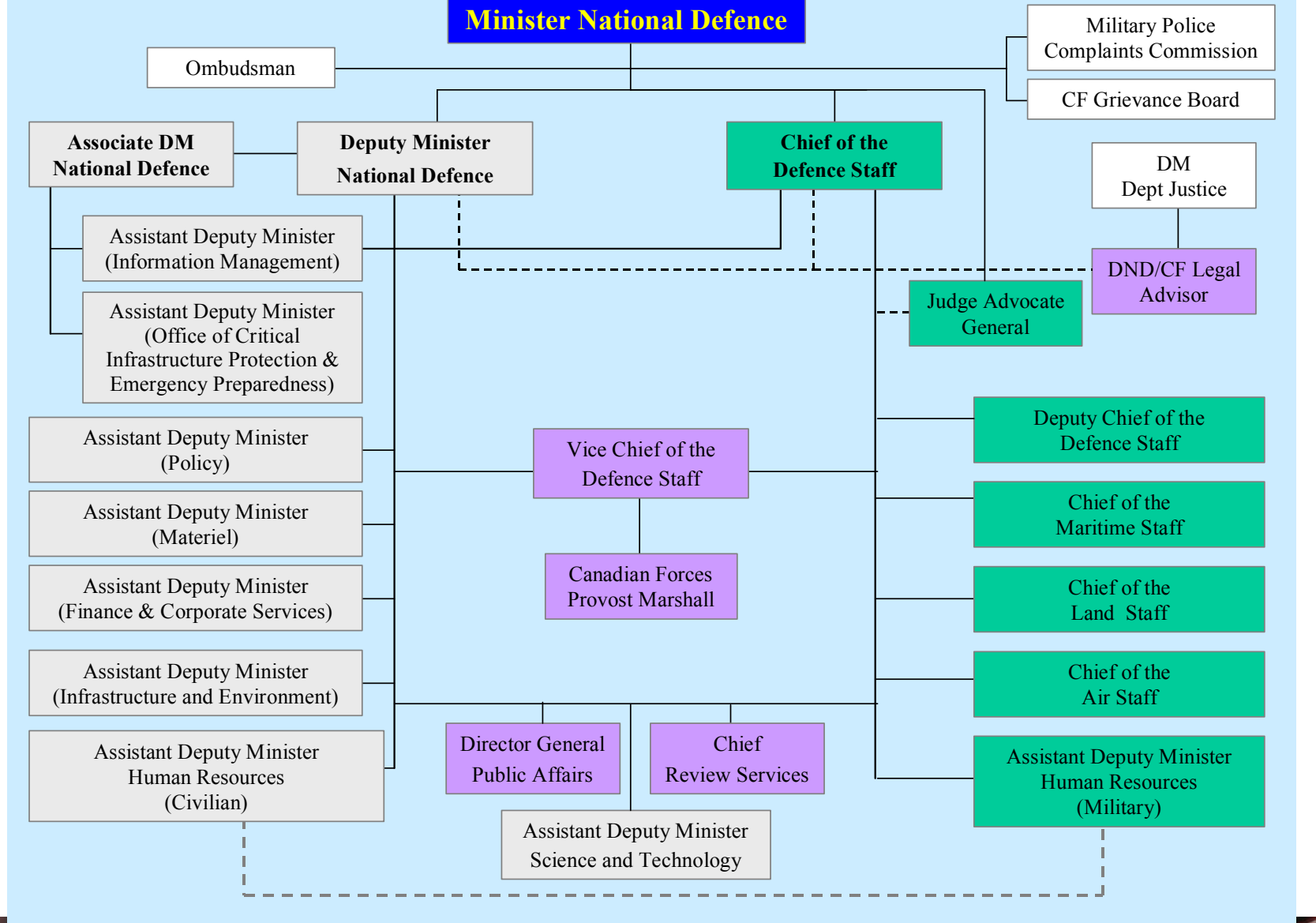


Outline

- Defence Decision Making in Canada
- Defence Management System
- Decision Making Committees
- Cost Validation Process
- Cost Validation Example



NDHQ Organization



Defence Management System



Capital Project Oversight Committees

- Program Management Board (PMB)
- Joint Capability Requirement Board (JCRB)
- Senior Review Board (SRB)



Program Management Board Responsibilities

- Manages in year resource issues
- Manages corporate accounts
 - capital
 - construction
 - Reserves
- Provides Departmental approval for projects (capital, construction, O&M)
- Deals with project O&M issues



JCRB Responsibilities

- Challenge and review all projects and capabilities and develop Strategic Capital Investment Plan (SCIP)
- Endorse capability and equipment requirements
 - Statement of requirements (SORs)
- Endorse concepts of operations
- Resolve issues of project scope
- Consider new capability issues
- At special JCRB, SCIP approved by Deputy Minister/Chief of Defence Staff



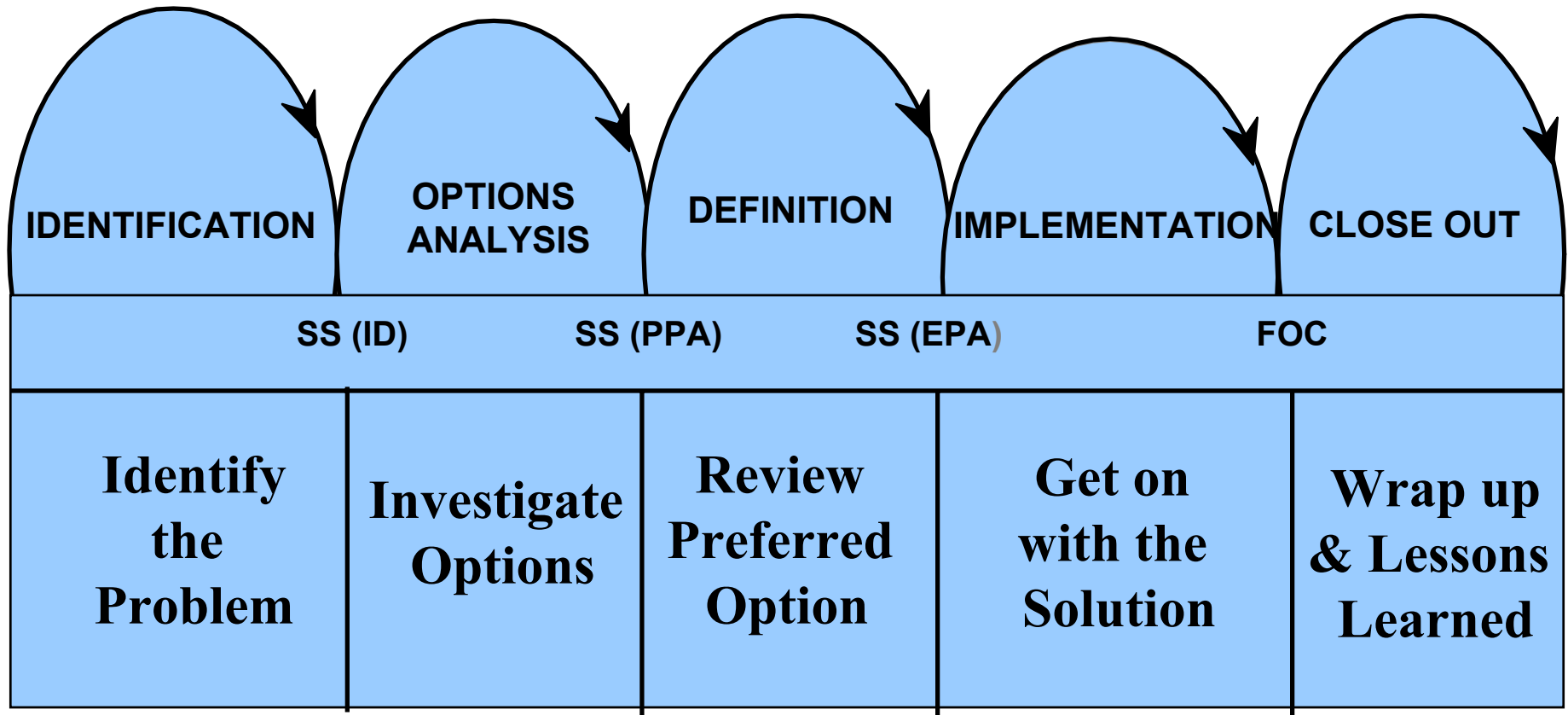
Senior Review Board Responsibilities

- Authorized and defined by the Project Charter
- Departmental committee which:
 - provides guidance/advice to the Project Leader and helps resolve issues
 - ensures that Level 1 Managers and functional authorities have input
 - assesses risks (including trade-offs)
 - ensures corporate or “horizontal” issues are considered
 - provides an initial departmental review
 - Preparation for senior level consideration

L1 = Senior Military Commander or Assistant Deputy Minister



Project Phases



Costing Services in NDHQ

- Directorate of Strategic Finance and Costing (DSFC)
 - DSFC 2 - Strategic Costing
 - DSFC 3 - Strategic Finance
 - DSFC 4 - Strategic Finance Coord
 - DSFC 5 - Program Coordination
- Mandate – Advice to DG Fin Mgt on financial probity



Purpose of Strategic Costing

- Integral to Modern Comptrollership/Challenge Function
- Not necessarily to challenge decision presented, but to:
 - Review decision elements for consistency
 - Ensure conformity with intent of statutes & policies
 - Assess Financial Risk to allow for stable planning
- Ultimate Goal – Are the Costs Presented Reasonable?

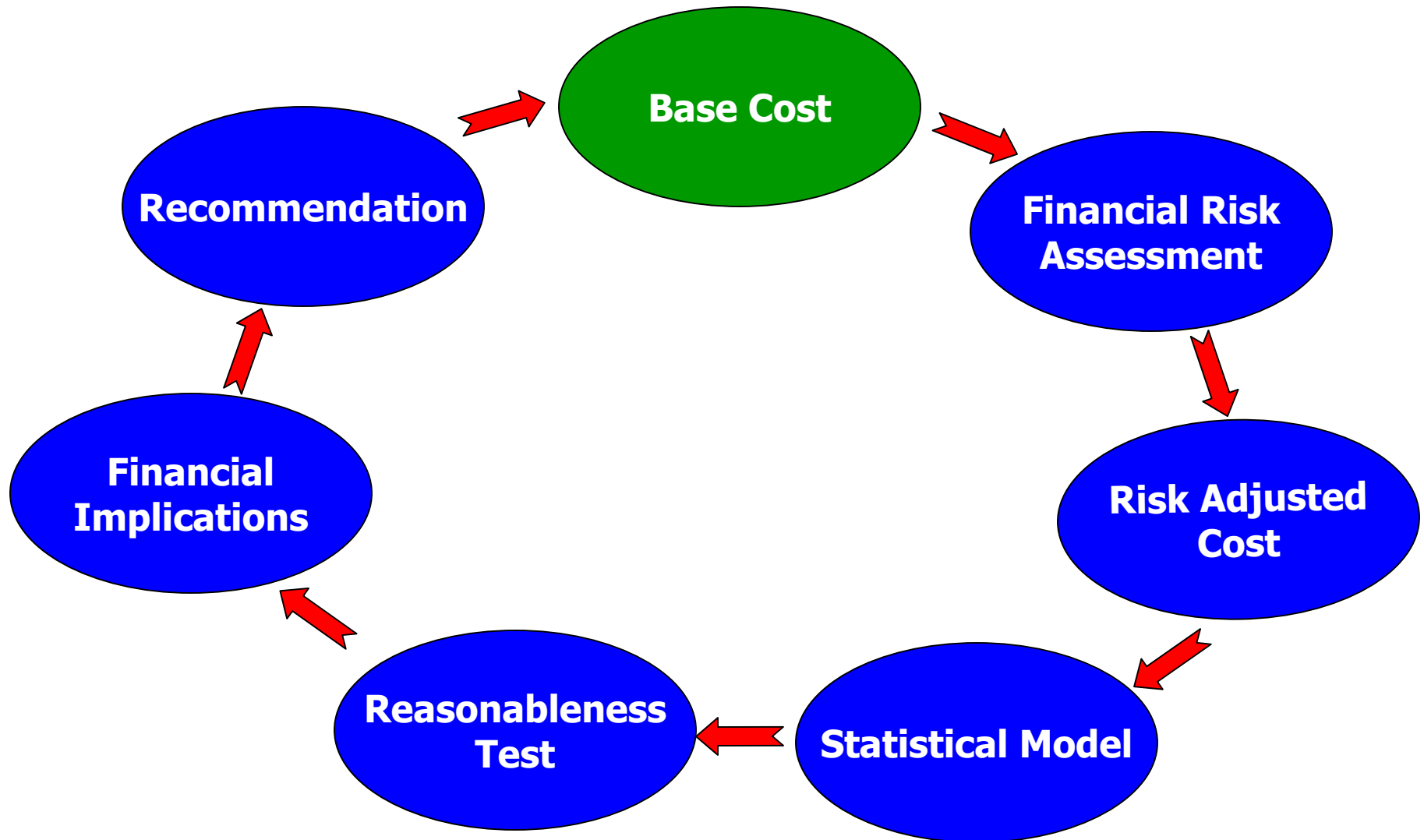


Cost Validation Process

- Assistant Deputy Minister (Finance & Corporate Services) is personally required to sign (attest) to the financial implications of all submissions going to the Minister of National Defence, and Treasury Board of the federal Cabinet.
- The Director General Financial Management has instituted the costing validation process to assure himself that the requirements for an attestation and the principles and requirements of Modern Management/Modern Comptrollership are met.



Financial Risk Schematic



Base Cost



- Provided by the Project
- Projected Cost before Contingency
- May be based on:
 - Defence Management System Milestone:
Total Departmental Cost
 - Decision Documents: Total Economic Cost

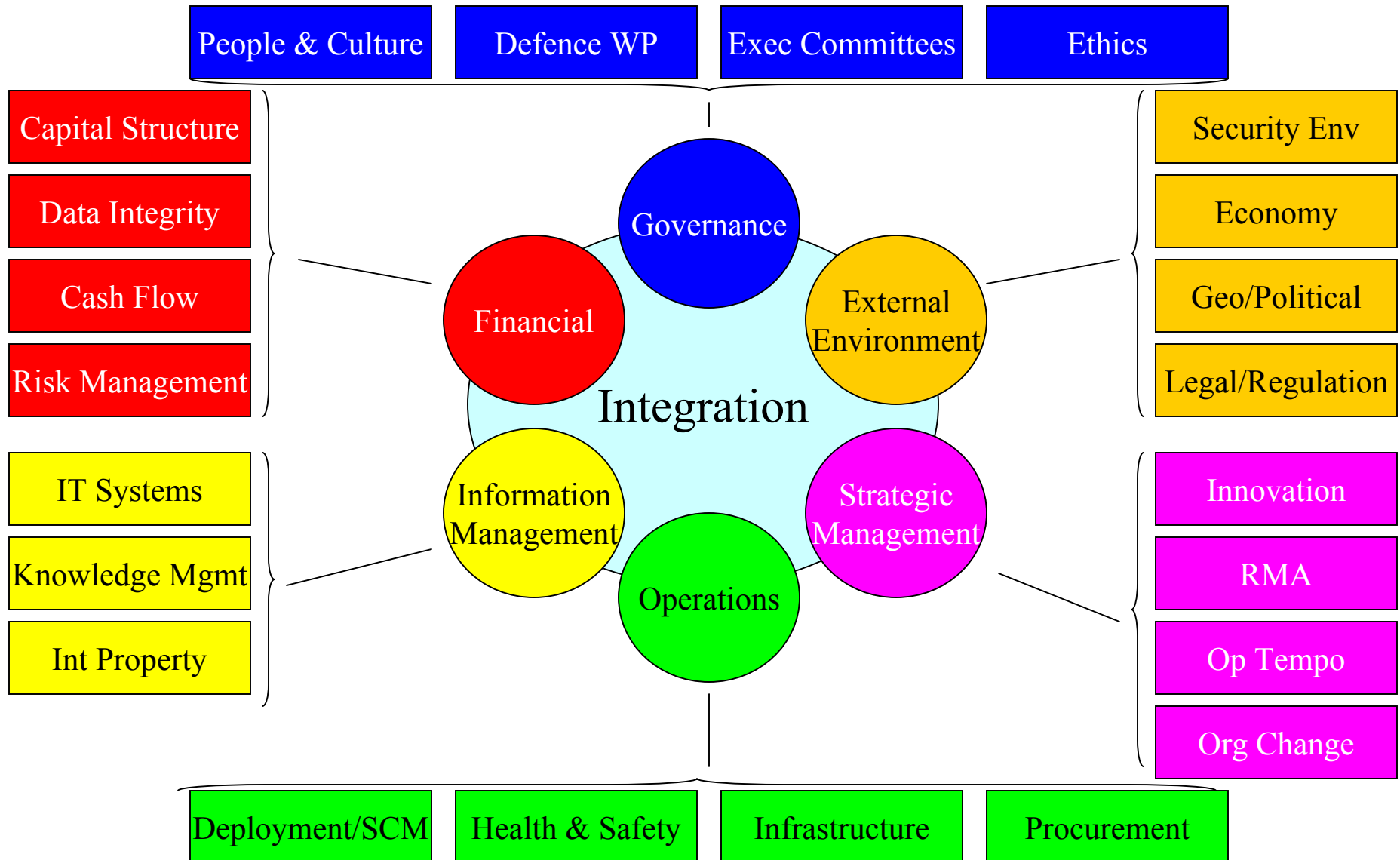


Financial Risk Assessment

- Conducted by Director
Strategic Finance & Costing
- Based on three components:
 - Data Integrity Risk: Data is verifiable/meets accepted standards
 - Performance Related Risk: All required cost elements have been considered
 - Integration Risk: Collateral impacts to other capabilities



DND Risk Environment



Data Integrity Risk

- Main Tool – Data Integrity Gap Analysis
- If the data underlying a decision is potentially flawed, executives need to factor this into the decision
- Data Integrity Gap Analysis has three components
 - Confidence Level - Tied to Cost Categorization
 - Risk Factor – How much does this increase cost at WBS level?
 - Criticality – How relevant is this to the total project cost?



Cost Categorization

- **Rough Order of Magnitude (ROM):**
- **Indicative**
- **Substantive**



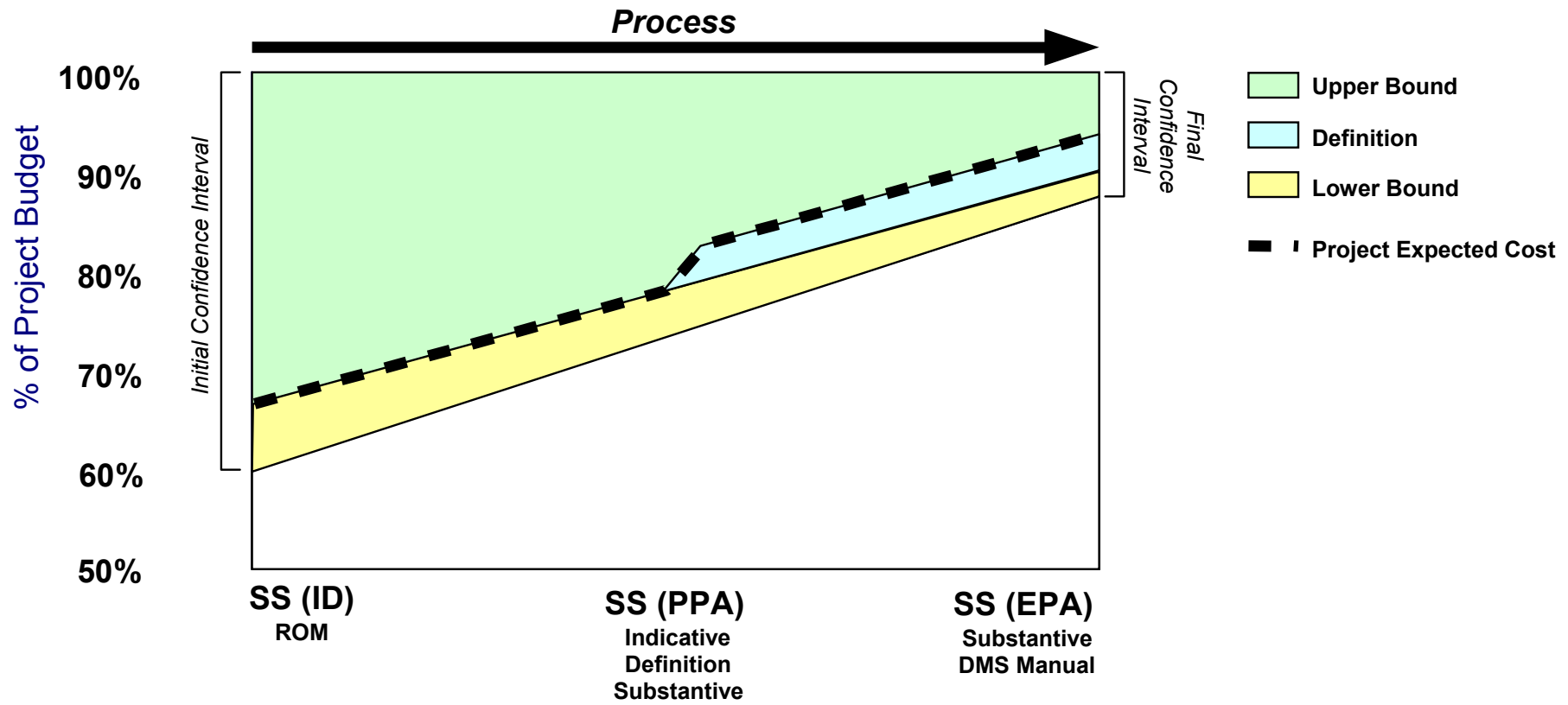
Data Integrity Risk Scale

Data Integrity Confidence Level	Appropriate Contingency Ranges	Cost Categorization	Risk Weight	Criticality
Very Low	> 40%	ROM	Very Substantial	Very Substantial
Low	31 to 40%	Indicative	Substantial	Substantial
Medium	21 to 30%	Indicative	Significant	Significant
High	11 to 20%	Sub/ Indicative	Insignificant	Insignificant
Very High	0 to 10%	Substantive	Very Insignificant	Very Insignificant

- DND Project Approval Guide rates (5%-10%-15%) are based on substantive data



Contingency Based on Quality of Information



Time

Performance & Integration Risks

- Performance related risks are typically modeled
 - Technical Risk – associated with new design/technology
 - Supportability Risk – associated with fielding and manning
 - Programmatic Risk - outside project control
- Integration Risks are modeled where possible



Risk Adjusted Cost

- Base Cost plus
 - Data Integrity Risk Assessment
 - Performance Related Risk Assessment
 - Integration Risk Assessment



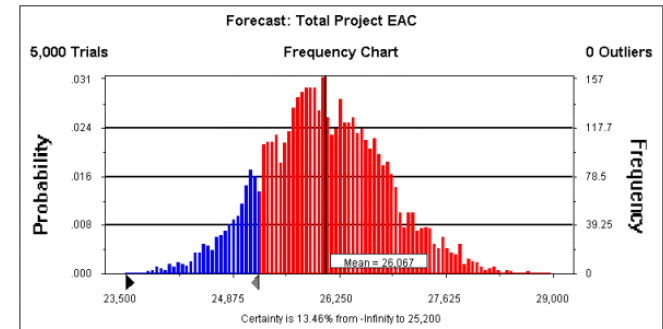
Statistical Model

- Identify (Triangular) Cost Distributions by Work Breakdown Structure (WBS)
- Assess WBS Correlations
- Sum WBS Cost Distributions
- Model Performance/Integration Risks
- Run Simulation



Simulation of Cost Model

- Uses either Crystal Ball™ or @Risk™
- Based on sum of modeled risks
- Can be used to determine
 - Cost at given Confidence Level
 - Probability of exceeding Base Cost or other identified cost





Reasonableness Check

- Identified costs – comparison at given confidence level
- Project Cost vs Risk Adjusted
 - Reject (if difference is considered material)
 - Accept (some additional detail required)
 - Accept without observation
- Becomes basis for recommendation to
Director General Financial Management



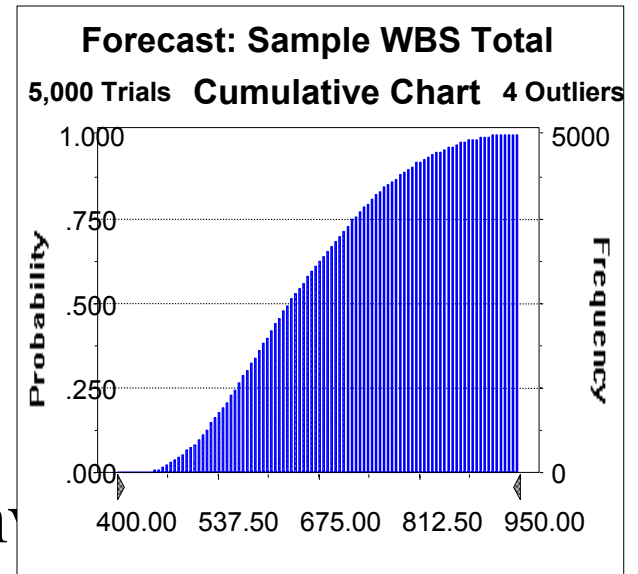
Financial Implications

- Analysis is redone to confirm probity of decision
- \$CY and NPV done at minimum
- Depending on the situation other fundamental measures
- Qualifies cost implications of investment
- Identify affordability – Total Cost of Ownership
- Conformity with vision & strategic direction of DND



Recommendation to DG Fin Mgmt

- Recommend acceptance of the costing information
- Identify perceived financial risk
 - Data Integrity Risk
 - Performance Related Risk
 - Integration Risk
- Present simulation results
- Present assessment of Probity of in



Summary – Financial Risk

- Scientific methodology based on identified assumptions
- Scalable to fit information and time available
- Addresses the optimistic nature of Program Managers
- Provides meaningful assessment of total cost implications
- Demonstrates ‘Due Diligence’ – Modern Comptrollership
- Reduces Executives’ reliance on intuition
- Basis for comparison with results



The Way Ahead for Costing Methodology

- Select/procure Risk Analysis Software
- Formalization of Process/Methodology
- Analyst Training / Continuing Education
 - Participation in Conferences/Symposia
 - Directed Research
 - Formal Course Training / Accreditation



Cost Validation Example

- Materiel Acquisition & Support Information System (MASIS)
 - MASIS is an information system project designed to help manage military equipment from acquisition to disposal.
 - The intent of MASIS is to reduce redundancies currently associated with legacy stovepipe systems.



Cost Validation Example

- **MASIS Risks**
 - Supportability – Support to Deployed Ops
 - Programmatic – Consultants vs Civilian Staff
 - Integration
 - Interface with Existing Systems
 - Security Upgrades



Cost Validation Example

- MASIS Costs
 - Project Risk Cost – \$200M
 - Risk Adjusted Cost - \$340M to \$480M
(70% to 140%)
- Decision
 - Project suspended (current phase)
 - Risk Mitigation Strategy/Efficiencies



Summary

- Defence Decision Making in Canada
- Cost Validation Process
- Canadian Experience
 - Areas of Concern
 - Areas of Interest



QUESTIONS

